Filter Temperature Sensor Locations and Feed Thru Pins *after* 3 RTDs failed.

RTD is a 100 ohm platinum resistor with a 0.00385 Ω /°C temperature coefficient.

Thermocouples are Type K. Thermocouple wire goes from the sensor to a vacuum feed thru. The vacuum feed thru introduces some error because its pins are a different metal from that of the thermocouple wire. Another piece of thermocouple wire runs from the feed thru connector to the temperature controller.

Filter volume is 1.72 liters.

Note: Check valves are no longer in the system.

Filter regeneration heater clamshell.

One TC on the outside surface of the filter housing, under the clamshell. This TC is in a tube welded to the filter housing. Pins C&D.

One RTD inserted into a tube that extends into the middle of the filter material. Pins A&B.

Filter regeneration gas pre-heater.

Stainless steel tubing wrapped around an aluminum cylinder. Two TC sensors embedded in aluminum block for heater control. During cryo cool down, temperature sensors embedded in aluminum cylinder will trail tube temperature because of the poor thermal connection (line contact) between the tubes and cylinder.

